-- In one embodiment where there is no implanting step (i.e., hydrogen implant), the embrittled region is not formed. The strained silicon layer 104 is transferred to the SOI wafer 401 by a bonded-etchback process on the silicon wafer 101 and the strained SiGe 104. this gives the strained silicon film on the SOI wafer 401.--

IN THE CLAIMS

Following is a complete set of claims as amended with this response, which includes amendments to claims 14-19, and adds new claims 20-33.

CLEAN VERSION OF THE ENTIRE SET OF CLAIMS

What is claimed is:

14. (AMENDED) A device comprising:
a silicon layer;
a relaxed layer; and
a strained silicon layer in contact with the relaxed layer, the strained silicon layer to be transferred to top of a wafer by a heat treatment, the wafer having a base substrate and an oxidized film.

15. (AMENDED) The device of claim 14 further comprising an embrittled region.

16. (AMENDED) The device of claim 15 wherein the embrittled region is created by an ion implantation.

17. (AMENDED) A device comprising:
a silicon layer;
a SiO_2 layer in contact with the silicon layer; and

a strained silicon layer on top of the SiO_2 layer, the strained silicon layer being transferred from a wafer, the wafer having a stack structure of a base substrate and a layer of relaxed film.

18. (AMENDED) The device of claim 17 wherein the relaxed film is a relaxed SiGe layer.

19. (AMENDED) The device of claim 18 wherein the wafer further comprises an embrittled region.

20. (NEW) The device of claim 17 wherein the strained silicon layer is transferred to top of the SiO_2 layer by a bonded-etch back process.

21. (NEW) The device of claim 17 wherein the base substrate is a silicon layer.

22. (NEW) The device of claim 17 wherein the heat treatment uses a temperature range of approximately 400°C to 600°C.

23. (NEW) The device of claim 14 wherein the relaxed layer is a relaxed SiGe layer.

24. (NEW) The device of claim 23 wherein the relaxed SiGe layer has a thickness ranging from 0.1um to 3.0um.

25. (NEW) The device of claim 16 wherein the ion implantation uses an energy range of approximately 1keV to 20keV.

26. (NEW) The device of claim 16 wherein the ion implantation uses a dose range of approximately 1E116/cm^3 to 1E18/cm^3.

27. (NEW) The device of claim 16 wherein the ion implantation uses hydrogen ions.

28. (NEW) A wafer structure comprising:

a first wafer having a first base substrate, a relaxed film layer, and a strained film layer; and

a second wafer having a second base substrate and an oxidized film layer, the second wafer being bonded to the first wafer by a fire heat treatment, the strained film layer being transferred to the second wafer after the second wafer is separated from the first wafer by a second heat treatment.

29. (NEW) The wafer structure of claim 28 wherein one of the first and second base substrates is a silicon layer.

30. (NEW) The wafer structure of claim 28 wherein the relaxed film is a relaxed SiGe layer.

31. (NEW) The wafer structure of claim 28 wherein the strained film layer is a strained silicon layer.

32. (NEW) The wafer structure of claim 28 wherein the first heat treatment uses a temperature range of approximately 100°C to 300°C.

33. (NEW) The wafer structure of claim 28 wherein the second heat treatment uses a temperature range of approximately 400°C to 600°C.